

## 58SX040-IBC (Only)

## **Deluxe Gas-Fired Condensing Furnaces**

# **Application Data**

Installation Guidelines—Procedures

#### INTRODUCTION

Portions of the following instructions have been adopted in part from the current edition of the National Fuel Gas Code NFPA No. 54, TIA-54-1984-1/ANSI Z223.1-1984, Z223.1a-1987 and American Gas Association. For further details, consult this publication, or the current edition available from National Fire Protection Association, Inc., Battery-march Park, Quincy, MA 02269, or American Gas Association, 1515 Wilson Boulevard, Arlington, VA 22209.

These instructions cover *minimum* requirements and conform to existing national standards and safety codes. In some instances, these instructions exceed certain local codes and ordinances, especially those that may not have kept pace with changing residential construction practices. Carrier requires these standard procedures as a minimum for a safe installation.

Refer also to regulations of the local gas supplier as well as to local building, heating, plumbing, or other codes in effect in area in which installation is made.

## **A CAUTION**

Application of this furnace should be indoors with special attention given to vent sizing and material, gas input rate, air temperature rise, and unit sizing. Improper installation or misapplication of the furnace can require excessive servicing or cause premature component failure.

This furnace is designed for a minimum continuous return air temperature of 60 degrees F DB or an intermittent operation down to 55 degrees F DB such as when used with a thermostat night setback.

## **A WARNING**

Never store anything on, or in contact with, the furnace, such as:

Spray or aerosol cans, rags, brooms, dust mops, vacuum cleaners, or other cleaning tools.

Soap powders, bleaches, waxes or other cleaning compounds, plastic or plastic containers, gasoline, kerosene, cigarette lighter fluid, dry-cleaning fluids, or other volatile fluids.

Paint thinners and other painting compounds, paper bags or other paper products.

A failure to adhere to this warning can cause corrosion of the heat exchanger and vent system, fire, personal injury, or death.

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#### INSPECTION

Available power supply must meet specifications on furnace rating plate and on all motors in the equipment.

Check the available gas supply to see that it conforms to the gas specification on the A.G.A. rating plate.

#### **FURNACE LOCATION**

Locate the furnace as near the center of the air distribution system as possible.

This furnace may be located in a confined space without special provisions for dilution or ventilation air.

Provide ample space for servicing and cleaning. Always comply with the minimum fire protection clearances shown on the unit rating plate. This furnace must NOT be installed directly on carpeting, tile, or any combustible material other than wood flooring.

### **A CAUTION**

Do not install furnace in unconditioned space that could experience temperatures of 32 F or lower.

**NOTE:** For proper furnace operation, the furnace must be installed within 1/2 in. of level.

When furnace supply ducts deliver air to areas outside the space containing the furnace, return air ducts must also be sealed to furnace casing and must terminate outside the space containing the furnace. Otherwise, a negative pressure condition could develop within equipment room or space.

Furnace Location Relative to Cooling Equipment—Install cooling coil in parallel with, or on downstream side of, furnace to reduce potential for condensation in heat exchanger. When a coil is installed in parallel with a furnace, dampers or other means used to control airflow must prevent chilled air from entering furnace. For manual damper operation, equip dampers with a means of preventing operation of either unit unless damper is in the full-heat or full-cool position.

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Special Locations—When installing furnace in a residential garage, protect it from physical damage by vehicles. Furnaces installed in public garages, airplane hangers, or other buildings having hazardous atmospheres must comply with requirements of the National Fire Protection Association, Inc.

#### **GAS PIPING**

Gas piping must be installed in accordance with national and local codes.

Run a separate gas supply line directly from the meter to the furnace, if possible. Table 1 shows recommended gas pipe sizing. Slope all pipe 1/4 inch in 15 ft to prevent traps. Slope all horizontal runs away from meter and toward risers. Use risers to connect lines to furnace and meter.

Apply joint compounds (pipe dope) sparingly and only to male threads of joints. Consult local gas supplier for compound recommendations.

**NOTE:** Use only compounds resistant to the action of LP (propane) gas.

Install a sediment trap in the riser leading to the furnace to trap dirt and condensate. Connect a tee to the riser leading to the furnace, keeping straight-through section of tee vertical. Connect a capped nipple into lower end of tee, so that nipple extends below level of gas controls (Fig. 1).

Where a gum filter is required by local codes, install it in accordance with their requirements.

An accessible manual shutoff valve *must* be installed upstream of furnace gas controls and within 6 ft of furnace. A 1/8-in. NPT plugged tapping, accessible for test-gage connection, *must* also be installed immediately upstream of gas supply connection to furnace and downstream of manual shutoff valve.

Install a ground joint union between gas control manifold and manual gas shutoff valve (Fig. 1).

#### **A** CAUTION

Use a backup wrench when connecting gas pipe to furnace to avoid damaging gas controls.

## **A WARNING**

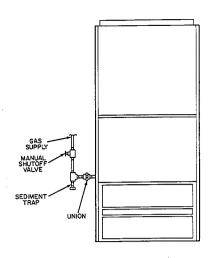
Use the proper length of pipes to avoid stress on the gas control manifold. A failure to adhere to this warning can cause a gas leak resulting in a fire, explosion, physical injury, or death.

Protect all segments of the piping system against physical and thermal damage. Support all piping with appropriate straps or hangers (one hanger every 6 ft minimum). For pipe

Table 1—Maximum Capacity of Pipe\*

NOMINAL IRON PIPE	INTERNAL DIAMETER	LENGTH OF PIPE (ft)					
SIZE (in.)	(in.)	10	20	30	40	50	
1/2	0.622	175	120	97	82	73	
3/4	0.824	360	250	200	170	151	
1	1.049	680	465	375	320	285	
1-1/4	1.380	1400	950	770	660	580	
1-1/2	1.610	2100	1460	1180	990	900	

Ref: Table C-4 NFPA 54-1984



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Fig. 1—Ground Joint Union and Sediment Trap

sizes larger than 1/2 in., follow recommendations of national codes.

#### **A** CAUTION

If a flexible connector is required or allowed by the authority having jurisdiction, black iron pipe must be installed at the gas valve and extend a minimum of 2 in. outside the furnace casing.

Pressure-test piping in accordance with local and national plumbing and gas codes before attaching furnace. Crack ground joint union before pressure testing. If pressure exceeds 0.5 psig (14 in. wc), disconnect gas supply line from furnace before performing pressure test. If test pressure is equal to or less than 0.5 psig (14 in. wc), close manual shutoff valve located on gas valve before testing.

After final connection to the furnace has been made, purge lines and check for leakage with regulated gas supply pressure.

## **A WARNING**

Never purge line into combustion chamber. Never use matches, candles, flame, or other sources of ignition to check for gas leakage. Use a soap-and-water solution to check for leaks. A failure to adhere to this warning can cause a fire, explosion, physical injury, or death.

#### **COMBUSTION-AIR AND VENT PIPING**

The combustion-air and vent pipe and fittings must conform to American National Standards Institute (ANSI) standards and American Society for Testing and Materials (ASTM) standards D1785 (schedule-40 PVC), D2665 (PVC-DWV), D2441 (SDR-21 and SDR-26 PVC) or D2661 (ABS-DWV). Pipe cement and primer must conform to ASTM standards D2564 (PVC) or D2235 (ABS). See Table 3 for pipe sizing and Fig. 3 through 5 for exterior piping arrangements. See "High-Altitude Pipe Sizing Procedures" section for high-altitude applications.

The unit is shipped with a 2-1/2 x 2-1/2-in. rubber coupling. An optional coupling size 2-1/2 x 2-in. is available through the Distributor or Branch. See the Replacement Parts catalog for the part number.

<sup>\*</sup>Cubic ft of gas per hour, for gas pressures of 0.5 psig (14 in. wc) or less, and a pressure drop of 0.5 in. wc (based on a 0.60 specific gravity gas).

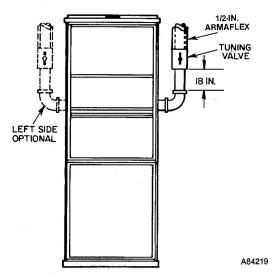


Fig. 2—Tuning Valve Location

The accessory vent terminal kit described below must be used in constructing the vent terminal for this unit. Pipes must terminate through either the roof or the sidewall; roof termination is preferable. Locate sidewall terminations to prevent damage to shrubs, condensing unit, and siding materials. Table 2 gives clearance requirements.

## **A** CAUTION

Combustion air must *not* be taken from inside the structure because that air frequently is contaminated by halogens, which include fluorides, chlorides, bromides, and iodides. These elements are found in aerosols, detergents, bleaches, cleaning solvents, salts, air fresheners, and other household products. Vapors from these products are highly corrosive to gas-fired furnaces, even in extremely low concentrations (as low as 0.5 ppm).

Maintain a minimum of 36-in. between combustion-air inlet and clothes-dryer vent.

Locate the combustion-air inlet as far as possible from the swimming pool and swimming pool pump house.

NOTE: When a previously common-vented system (furnace and water heater) is converted to water heater only, the vent system may be drastically oversized for the water heater. Consult the National Fuel Gas Code for proper sizing of the vent and revise the system if necessary.

Table 2—Combustion-Air and Vent Terminal Clearances

LOCATION	CLEARANCE			
Dryer vent	3 ft			
From plumbing vent stack	3 ft			
Gas appliance vent terminal	4 ft			
From any opening where vent gases could enter building	12 in.			
Above grade and anticipated snow depth	12 in.			
Above grade when adjacent to public walkway	7 ft			

## **A** CAUTION

When the vent pipe is exposed to temperatures below freezing i.e. when it passes through an unheated space or when a chimney is used as a raceway, the pipe must be insulated with 1/2-inch thick Armaflex-type insulation.

**NOTE:** The vent pipe must be insulated with 1/2-in. thick Armaflex insulation from the tuning valve to the point where the pipe exits the structure.

## A CAUTION

When the combustion-air pipe is installed above a suspended ceiling, the pipe must be installed with 1/2-in. Armaflex insulation.

The combustion-air pipe should also be insulated in warm, humid spaces such as basements.

## **A WARNING**

Solvent cements are combustible. Keep away from heat, sparks, and open flame. Use only in well ventilated areas. DO NOT breathe vapors. Avoid contact with the skin or eyes. A failure to adhere to this warning can cause a fire or physical injury.

## **A WARNING**

All combustion-air and vent pipes must be airtight and watertight. Pipes must terminate exactly as shown in Fig. 3 through 5. A failure to adhere to this warning can cause property damage, physical injury, or death.

Furnace is shipped from factory assembled for right-hand vent pipe connection. When left-hand vent connection is desired, remove cap from left-hand side of inducer outlet box and install over hole in right-hand side of box.

Remove plastic plug from left-hand casing side panel and install plug in unused hole in the right-hand casing side panel.

Install the turning valve in the vertical riser of the vent pipe 18 in. above the elbow, as shown in Fig. 2.

To install piping:

Table 3—Pipe Diameter (in.)

PIPE LENGTH	NUMBER OF 90° ELBOWS (See Notes)					
(ft)	1	2	3	4	5	
5	2	2	2	2	2	
10	2	2	2	2	2	
15	2	2	2	2	2	
20	2	2	2	2	2	
25	2	2	2	2	2	
30	2	2	2	. 2	2	
35	2	2	2	2	2	

#### NOTES:

- 1. Assume two 45° elbows equal one 90° elbow.
- 2. Diameters listed are for schedule-40 PVC, PVC-DWV or ABS-DWV pipe.
- 3. Long radius elbows are desirable.
- Elbows and pipe sections supplied in vent terminal kit should not be included in count.
- 5. Do not exceed 35 linear feet.

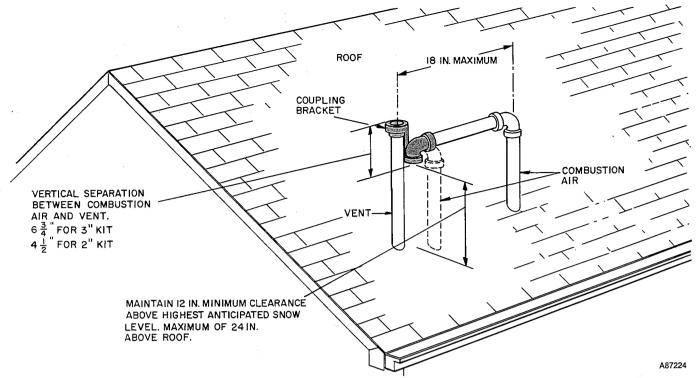


Fig. 3—Rooftop Vent Terminal Installation

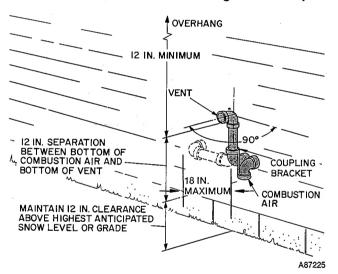


Fig. 4—Sidewall Vent Terminal Installation (12 in. above snow level or grade)

- 1. Attach factory-supplied flexible coupling to furnace combustion-air inlet connection and secure with stainless steel hose clamp. Ensure that factory-supplied, perforated metal combustion-air disc is installed in the flexible coupling.
- 2. Working from furnace to outside, cut PVC pipe to required length(s).
- 3. Deburr inside and outside of pipe.
- 4. Chamfer outside edge of pipe for better distribution of primer and cement.
- 5. Clean and dry all surfaces to be joined.
- 6. Check dry fit of pipe and mark insertion depth on pipe.

**NOTE:** All pipe should be cut, prepared, and preassembled before any joint is permanently cemented.

7. After pipes have been cut and preassembled, apply

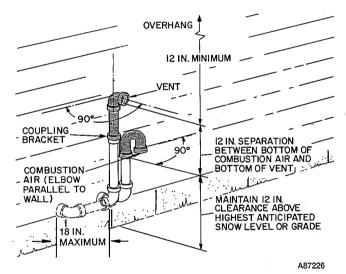


Fig. 5—Sidewall Vent Terminal Installation (less than 12 in. above snow level or grade)

generous layer of PVC primer to pipe fitting socket and end of pipe to insertion mark. Quickly apply PVC cement (over primer) to end of pipe and fitting socket. Apply cement in light, uniform coat on inside of socket to prevent buildup of excess cement. Apply second coat of cement to end of pipe.

- 8. While the PVC cement is still wet, insert pipe into socket with a 1/4-turn twist. Be sure pipe is fully inserted into fitting socket.
- Wipe excess cement from joint. A continuous bead of cement is visible around perimeter of a properly made joint.
- 10. Handle pipe joints carefully until cement sets.
- 11. Support piping every 5 ft (minimum) using perforated metal hanging strap. Slope combustion-air and vent pipes toward furnace a minimum of 1/4-in./lineal ft with no sags between hangers.

12. Use appropriate methods to seal openings where vent and combustion-air pipes pass through roof or sidewall.

Vent Terminal Kit Installation—The combustion-air and vent pipes must terminate outside the structure. The Carrier accessory vent termination kit for 2-in. diameter pipe (required) must be installed as shown in Fig. 3, 4 or 5. Roof termination, shown in Fig. 3, is preferred. The kit contains extra parts for the various applications.

NOTE: The shaded portions of Fig. 3, 4 and 5 are considered part of the vent terminal and are provided in the vent terminal kit. They should not be counted, therefore, in pipe diameter calculations.

## ROOFTOP VENT TERMINAL INSTALLATION (Fig. 3)

**NOTE**: The solid-line arrangement in Fig. 3 is the preferred arrangement; the dashed-line arrangement is an option for the combustion-air pipe.

- Remove one 90° elbow from elbow and bracket assembly provided in kit. Loosen screw so other elbow can turn.
- 2. Loosely install elbow with bracket on combustion-air pipe.
- 3. Loosely install pipe coupling, provided in kit, on properly cut vent pipe. Position coupling so that bracket will mount as shown in Fig. 3.
- Disassemble loose pipe fittings. Clean them and apply cement using procedures described in Combustion-Air and Vent Piping.
- 5. Install bracket as shown in Fig. 3.
- 6. For applications using combustion-air pipe option (indicated by dashed lines in Fig. 3), install 90-degree street ell into 90-degree elbow, making a U-fitting. Install the open end of 90-degree street ell onto combustion-air pipe.

SIDEWALL VENT TERMINAL INSTALLATION—Install kit as follows when combustion-air and vent pipes exit through sidewall 12 in. or more above highest anticipated snow level or grade (Fig. 4).

**NOTE:** The solid-line arrangement in Fig. 4 is preferred. The dashed-line arrangement is an option for the vent pipe only.

- 1. Loosely install elbow and bracket assembly on combustion-air and vent pipes.
- 2. Remove and disassemble elbow and bracket assembly.
- 3. Install elbows as shown in Fig. 4. Clean them and apply cement using procedures described in Combustion-Air and Vent Piping.
- 4. Install bracket as shown in Fig. 4.
- 5. Position vent-pipe assembly, maintaining a 12-in. separation. Cement vent pipe in elbow as shown in Fig. 4.
- 6. For applications using vent-pipe option (indicated by dashed lines in Fig. 4), rotate elbow 90° from position shown.

Install kit as follows when combustion-air and vent pipes exit through sidewall less than 12 in. above highest anticipated snow level or grade (Fig. 5):

**NOTE:** The solid-line arrangement in Fig. 5 is preferred. The dashed-line arrangement shown is an option for the vent pipe only.

- Remove one elbow from the elbow and bracket assembly. (The elbow remaining will be connected to combustion-air pipe).
- 2. Install the 90-degree street ell into the 90-degree elbow

- remaining in elbow and bracket assembly, making a U-fitting.
- 3. Loosely install coupling on end of vent pipe.
- 4. Loosely install U-fitting and bracket as shown in Fig. 5. Position U-fitting so that open end is against building wall.
- 5. Loosely install vent-pipe assembly in coupling as shown in Fig. 5.
- 6. Check required dimension as shown in Fig. 5.
- Disassemble loose pipe fittings. Clean them and apply cement using procedures described in Combustion-Air and Vent Piping.
- 8. Install bracket as shown in Fig. 5.

#### **CONDENSATE DRAIN**

Route the condensate to a nearby floor drain or condensate pump. If a condensate pump is required, it should have a corrosion-resistant impeller and tank.

The 1/2-inch diameter schedule 40 PVC or CPVC condensate drain pipe fittings must conform to ANSI standards and ASTM D1785 and D2846. The schedule 40 PVC or CPVC cement and primer must conform to ASTM F493 or D2564.

For proper condensate drainage, furnace must be within 1/2-in. of level. Highest corner of furnace must not be more than 1/2-in. above lowest corner.

**NOTE:** The furnace contains an internal condensate trap; do NOT install external trap.

- Determine the side of furnace from which drain will exit. Cut and preassemble drain piping (field-supplied) directly to an open drain. Refer to Combustion-Air and Vent Piping for instructions on preparing and cementing plastic pipe.
- 2. Cement elbow on pipe assembly (factory supplied) to condensate trap mounted on blower housing.
- Using a second wrench to hold assembly, attach first section of field-supplied drain pipe to compression coupling provided.
- When using schedule 40 PVC drain pipe, connect adapter provided to end of pipe installed in compression fitting.
- Attach field-supplied schedule 40 PVC adapter to threaded factory adapter.
- 6. Cement remaining pipe joints.

#### START-UP, ADJUSTMENT, AND SAFETY CHECK

Adjusting Tuning Valve—Before firing the furnace, adjust the pressure drop through the heat exchanger for maximum efficiency, following the steps below.

### **A** CAUTION

Be sure gas supply to furnace is turned off.

- Install field-supplied plastic tee between pressure tap on bottom of gas valve and pressure tube as shown in Fig. 6.
- Install second field-supplied plastic tee between pressure switch and pressure tube from collector box. See Fig. 6.
- 3. Connect slope gage to tees (Fig. 6.)
- 4. Close R-W circuit to start inducer motor.
- 5. Adjust tuning valve to obtain  $0.83 \pm 0.01$  in. negative water column.
- Remove handle from tuning valve and recheck pressure. Store handle in safe place.

- 7. Open R-W circuit.
- 8. Disconnect slope gage.
- 9. Remove plastic tees and reconnect factory pressure tubes to gas valve and pressure switch.
- 10. Turn on gas supply to furnace.

Ignition System Check—When all connections have been checked, light the furnace using procedure outlined on lighting instruction attached to furnace. When lighting the furnace for the first time, however, perform the following additional steps:

- 1. If gas supply was not purged before connecting furnace, line will be full of air. Loosen ground joint union and allow supply line to purge until gas odor is detected. Never purge gas lines into a combustion chamber. Immediately upon detection of gas odor, retighten union. After 5 minutes, light furnace in accordance with instructions on furnace rating plate.
- 2. Main burners should light 25 to 75 seconds after pilot. If main burners do not light within prescribed time period, check pilot flame.
- 3. The pilot flame should be soft blue in color and it must provide good impingement on the pilot switching element. The flame should extend above the burner carry-over port to provide a proper burner ignition. When the pilot flame requires adjustment:
  - a. Locate adjustment screw marked "PILOT ADJ" on top of gas valve.
  - b. Remove cap and turn adjustment screw clockwise to decrease pilot gas flow. Turn screw counterclockwise to increase pilot gas flow.
  - c. When proper adjustment is obtained, replace screw cap.

#### Gas Input

**NOTE**: Be sure reference pressure tube, combustion-air and vent pipes, and burner enclosure front are in place when clocking the gas meter.

- 1. Determine gas input.
  - a. Turn off all other gas appliances and pilots.
  - b. Measure time (in seconds) for gas meter test dial to complete one revolution.
  - c. Refer to Table 4 for cu ft of gas per hour.
  - d. Multiply cu ft/hr by heating value of gas (Btu/cu ft) obtained from local gas utility.

#### **EXAMPLE:**

Btu heating input = Btu/cu ft times cu ft/hr Heating value of gas = 1070 Btu/cu ft Time for one revolution of 2-cu-ft dial = 72 sec Gas rate = 100 cu ft/hr (from Table 4) Btu heating input =  $1070 \times 100 = 107,000$  Btuh

- e. Measured gas input must not exceed gas input on unit rating plate.
- 2. To adjust input rate:
  - a. Remove burner enclosure front and cap that conceals adjustment screw for gas valve regulator.
  - b. Turn adjusting screw either counterclockwise (out) to decrease input rate or clockwise to increase rate. When adjusting input rate, do NOT change manifold pressure more than 3.2 minimum to 3.8 maximum in. wc. Make any major adjustments by changing main burner orifices.

**NOTE**: Manifold pressure must always be measured with burner enclosure front removed. The gas meter must always be clocked with burner enclosure front installed.

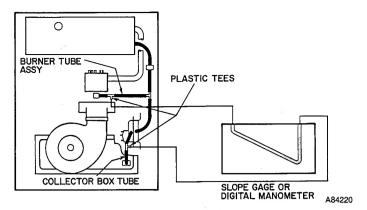


Fig. 6—Tuning Valve Adjustment

- c. Replace burner enclosure front and measure adjusted gas input rate using method outlines in step 1.
- d. Replace cap that conceals gas valve regulator adjustment screw.

## **A** CAUTION

Be sure burner enclosure front is in place after adjustments have been made.

3. Look through sight glass in burner enclosure and check burner and pilot flame. The main burner flame should be clear blue, almost transparent. The pilot flame should be well defined. See Fig. 7.

Table 4—Gas Rate in Cu Ft/Hr

SECONDS	SIZE OF			SECONDS	SIZE OF			
FOR ONE	TEST DIAL			FOR ONE	TEST DIAL			
REVOLU-	1	2	5	REVOLU-	1	2	5	
TION	cu ft	cu ft	cu ft	TION	cu ft	cu ft	cu ft	
10	360	720	1800	50	72	144	360	
11	327	655	1636	51	71	141	355	
12	300	600	1500	52	69	138	346	
13 14	277 257	555 514	1385 1286	53 54	68 67	136 133	340 333	
15	240	480	1200	55 55	65	131	327	
16	225	450	1125	56	64	129	321	
17	212	424	1059	57	63	126	316	
18	200	400	1000	58	62	124	310	
19	189	379	947	59	61	122	305	
. 20 21	180 171	360 343	900 857	60 62	60 58	120 116	300 290	
22	164	327	818	64	56	112	281	
23	157	313	783	66	54	109	273	
24	150	300	750	68	53	106	265	
25	144	288	720	70	51	103	257	
26	138	277	692	72	50	100	250	
27	133	267	667	74	48	97	243	
28	129 124	257 248	643 621	76 78	47 46	95 92	237 231	
29 30	120	240	600	80	45	90	225	
31	116	232	581	82	44	88	220	
32	113	225	563	84	43	86	214	
33	109	218	545	86	42	84	209	
34	106	212	529	88	41	82	205	
35	103	206	514	90	40	80	200	
36 37	100 97	200 195	500 486	92 94	39 38	78 76	196 192	
37 38	95	189	474	96	38	75	188	
39	92	185	462	98	37 .	74	184	
40	90	180	450	100	36	72	180	
41	88	176	439	102	35	71	178	
42	86	172	429	104	35	69	173	
43	84	167	419	106	34	68	170	
44	82 80	164 160	409	108 110	33 33	67	167 164	
45 46	78	157	400 391	112	32	65 64	161	
47	76	153	383	116	31	62	155	
48	75	150	375	120	30	60	150	
49	73	147	367	4				

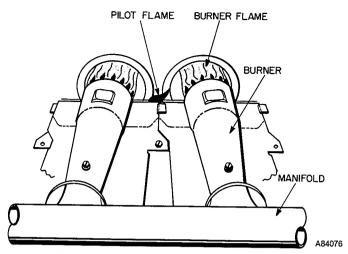


Fig. 7—Proper Pilot and Burner Flames

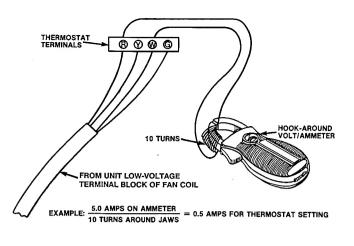
4. High Altitude—Input ratings apply for altitudes up to 2000 feet. Ratings for altitudes above 2000 ft must be 4% less for each 1000 ft above sea level.

**Temperature Rise**—Do NOT operate furnace outside range of temperature rise specified on unit rating plate. Determine air temperature rise as follows:

- Place thermometers in return and supply ducts as near furnace as possible. Thermometers must not "see" heating element or radiant heat may affect readings. This practice is particularly important with straightrun ducts.
- 2. When thermometer readings stabilize, subtract returnair temperature from supply-air temperature to determine air temperature rise.
- Adjust temperature rise by adjusting blower speed.
  Increase blower speed to reduce temperature rise.
  Decrease blower speed to increase temperature rise.

Thermostat Heat Anticipator Adjustment—Thermostat heat anticipator must be set to match amp draw of components in R-W circuit. Accurate amp draw measurements can be obtained at thermostat subbase terminals R and W. Figure 8 illustrates an easy method of obtaining these measurements. Amp reading should be taken after blower has started on its heating speed.

Safety Check of Limit Control—Control shuts off combustion gas supply and energizes circulating-air blower motor if furnace overheats.



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Fig. 8—Amp Draw Measurements

Recommended method of checking this limit control is to gradually block off return air after furnace has been operating for at least 5 minutes. As soon as limit control functions, return-air opening should be unblocked to permit normal air circulation. By using this method to check limit control, proper functioning can be determined and furnace will fail-safe if circulating air supply is restricted or motor fails. If limit control does not function during this test, identify and correct cause of malfunction.

Safety Check of Flow-Sensing Switch—This control proves operation of draft inducer. Check switch operation as follows:

- 1. Turn off 115-v power supply to furnace.
- Remove control access panel and disconnect inducermotor lead wires from inducer printed-circuit board.
- 3. Turn on 115-v power supply to furnace.
- 4. Close thermostat switch as if making normal furnace start. When flow-sensing switch is functioning properly, gas should not flow to pilot and ignitor should not operate. If either pilot gas flow or ignitor operation occurs when inducer motor is disconnected, shut furnace down immediately. Determine cause of malfunction and correct condition.
- 5. Turn off 115-v power supply to furnace.
- 6. Reconnect inducer-motor leads, reinstall control access panel, and turn on 115-v power supply.